

Flying Blind?

Vividata Go-to-Market Hiring Challenge

The challenge

“Running an airline is like having a baby: fun to conceive, but hell to deliver.”

— C. E. Woolman, founder of Delta Air Lines

On October 29, 1929, the New York Stock Exchange traded 16.4 million shares, a record that stood for almost forty years. The stock ticker printed at 285 words per minute and could not keep up. By the closing bell the tape ran roughly four hours behind the floor. Brokers across the country spent the afternoon reading prices that were hours old, and many investors learned what they were worth only that evening.

Most of the market waited for the tape to catch up. A few kept trading. Jesse Livermore had spent thirty years learning how markets behave, and when the tape went dark he could still reason about what had to be true. He operated through the worst week in the exchange’s history and came out with roughly \$100 million.

Airlines have their own tape: the flight movement system, the maintenance system, the crew system. These are the screens in the operations control centre that tell the airline what is true, and there have been well-documented incidents of them failing.¹ When they do, the flights still exist, the passengers still show up, and someone still has to run the airline.

This challenge asks you to be that someone: run an airline blind, by hand, for one week, profitably, and then present the result to its board.

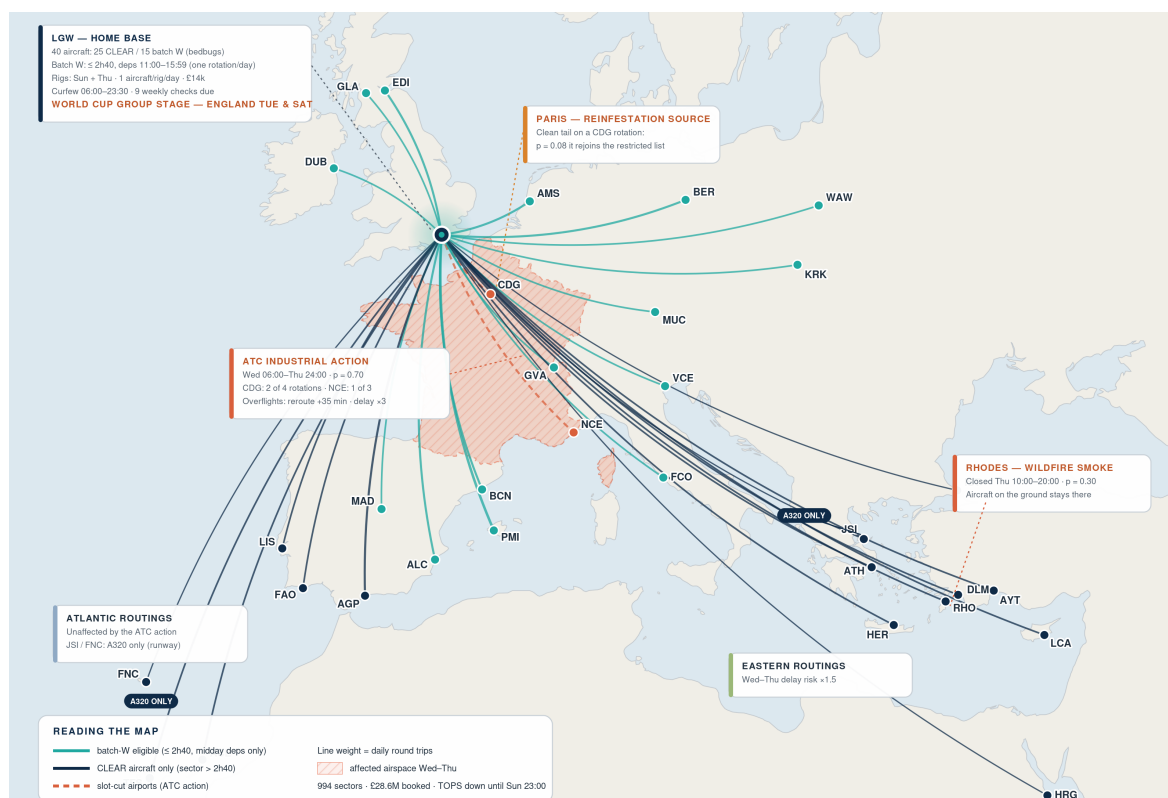
The scenario: Vividata Airlines, Sunday 12 July 2026

Vividata Airlines is a London Gatwick carrier: 40 aircraft (28 A320neo, 12 A321neo) flying 71 round trips a day to 32 airports across the UK and Europe. Tomorrow begins the biggest revenue week in the company’s history. England is hosting the World Cup, and this is the heart of the group stage: matches every day across the host cities, England playing Tuesday and Saturday, and fans arriving on every rotation from every city on the network, on top of the July holiday peak going the other way. The week holds 994 sectors and £28.6 million of booked revenue.

On Saturday at 21:14, TOPS, the Tail Operations Planning System, in service since 1998, processed its 5,000th aircraft swap of the month and stopped. The monthly ceiling was hard-coded, and a fortnight of slot reshuffles had burned through it early. The vendor’s recovery estimate is seven days. TOPS returns Sunday 19 July at 23:00, after the week is over.

¹On Christmas Day 2004, the crew-scheduling system of a large US regional carrier crashed after a snowstorm pushed it past a hard-coded limit of 32,768 schedule changes in a month. All 1,100 flights on the following day were cancelled.

Three things went down with it. The tail routings: the published schedule survives in the reservations system, but the assignment of aircraft to flights is gone, and someone must now rebuild it by hand, every day, for seven days. The maintenance plan: the week's work packages were staged in TOPS's planning module, and the last clean export is five days stale; engineering knows what is *due*, not what was *planned*. And the picture: no live status board, no conflict alerts, no what-if. ACARS and telephones still work.



Separately, the airline has bedbugs. Every aircraft that operated Paris rotations between mid-June and early July, 15 of the 40 including 6 of the 12 A321s, is infested.² The company medical adviser and the regulator have agreed a dispatch concession: **infested aircraft may fly sectors of 160 minutes or less, departing between 11:00 and 15:59 only**. Short midday hops, full daylight, nobody asleep. The long leisure sectors that carry the week's premium revenue (Greece, Turkey, the Canaries, Egypt) require clean aircraft. You have 25.

The cure is a scheduling problem. Heat treatment takes 12 hours plus a 2-hour return-to-service check, at the Gatwick hangar only, £14,000 per aircraft. One rig is available now; a leased second rig arrives Thursday 06:00. Every hour an aircraft spends in the rig is an hour it does not fly.

The rest of the operating picture: A321s cannot serve Skiathos or Funchal. Nine tails owe overnight weekly checks on set days. Gatwick's night restrictions hold: no departures before 06:00, last arrival 23:30. Two forecasts complicate the week further. Industrial action at two continental area control centres is notified for Wednesday and Thursday (probability 0.70): Paris and Nice lose 60% of their slots, with the airline choosing which flights, and routings through the affected airspace face reroutes and tripled delay risk, while eastern routings are partially clear

²Aircraft bedbug infestations are real; ask any carrier that flew through the 2023 Paris outbreak. So is the cure: seal the aircraft, protect the avionics, and hold the cabin at 56–60 °C for hours. Heat treatment of airliners has been performed with airframer concurrence for over a decade.

and the Atlantic tracks to the Canaries are untouched. And wildfire smoke may close Rhodes on Thursday between 10:00 and 20:00 (probability 0.30); an aircraft on the ground there when it closes stays there.

You are a consultant. You were in the building on other business. The board convenes at 18:00 and wants a plan. The data pack (schedule, fleet, costs, probabilities) is in the Useful Materials.

The week's events

The plan you hand the board on Sunday will be wrong by Tuesday. The data pack quantifies the ways; the table summarises them. Disruptions propagate through rotations: a morning delay reaches the evening bank, and a tail swap that fixes one flight can break a crew pairing five hours later. For each event, your procedures must say in advance who decides, by what rule, and at what threshold.

Event	Likelihood	First-order consequences
Technical finding	6% per tail-day; 30% serious (~2 away from base expected)	Minor: £6k at the next Gatwick overnight. Serious: 10 h/£35k at base; 24 h/£90k at an outstation with the rotation stranded: swap, ferry, or cancel and hotel.
ATC industrial action	0.70, Wed 06:00–Thu 24:00	CDG may operate 2 of 4 daily rotations, NCE 1 of 3; rotations surrendered whole, choices due by 22:00 the prior evening. Affected-airspace reroutes +35 min at £28/min; delay risk ×3.
Airport closure	0.30, Rhodes, Thu 10:00–20:00	Wildfire smoke. Affected flights cancel or retime; an aircraft on the ground at closure stays there: outstation overnight, crew out of position.
Cascading delay	5% per sector >60 min; ×3 in affected airspace	£65/min beyond 15, propagating down the rotation. An arrival after the 23:30 curfew diverts: £60k plus a displaced morning.
Crew FDP breach	10% per re-planned rotation if unchecked	A swap or delay re-times the crew pairing; past its limit the flight stops where it is: ~£40k and a stranded next morning. The crew system is up; nothing links it to your manual swaps.
Bedbug reinfestation	8% per Paris rotation on a clean tail	The tail rejoins the restricted list until treated.
Weekly check displaced	9 tails due; plan lost with TOPS	Beyond +1 day tolerance the tail is grounded; out-of-sequence execution costs £9k in overtime and call-outs.
Matchday surge	England play Tue and Sat; matches daily (certain)	Care costs ×1.5 on cancellations those days; the days least able to absorb risk.

Task definition

Input: the Vividata Airlines data pack (schedule.csv, fleet.csv, parameters.csv, events.csv, solution_template.csv).

Output: four artifacts.

1. **Optimised Schedule.** Aircraft routings for the week, the heat-treatment sequence, and the flights you cancel, with reasoning. Submit it in the solution_template.csv provided (one row per sector: tail, gauge, status), together with any printout a duty manager could execute from at 05:30 on Monday.

2. **Provisional Operating Procedures.** At most four pages. The airline must run for seven days on phones, whiteboards, and spreadsheets, and the events above will arrive on their stated probabilities. For each: the trigger, the role that owns the decision, the rule they apply with thresholds in pounds, who executes, who is informed, and where the decision is recorded so the next shift can find it. Rules must survive propagation: state who checks a proposed swap against crew FDP and maintenance due-times before it is executed, and what happens when a delay outruns its rotation. You are designing how the work is divided, not just what the answer is; procedures that reorganise the work are welcome, and describing today's OCC with the screens switched off is the weakest version of this document.
3. **Financial Value Model.** Value is a difference between two complete weeks: the week under your plan, and the week under a counterfactual you define and defend. Build that comparison. State what the airline would plausibly have done without you, what your schedule changes, and, separately, what your procedures are worth: the expected cost of each event handled by your rules versus handled ad hoc, weighted by its probability. Distinguish cash that varies this week from cost that is committed regardless. Price consequences, not symptoms: a delay minute or a cancellation has no universal price.
4. **The Deck.** At most twelve slides, presenting the schedule, the procedures, and the value model to the board at 18:00 tonight. Assume they are sceptical and short of time.

Judging criteria

Submissions will be ranked using a composite score based on:

1. **The result:** we run your schedule and procedures against our simulation of the week, same schedule, same distributions, and read the P&L. Cancellations, bumped passengers, treatment timing, curfew breaches, and slot handling all land where you put them.
2. **Operational design:** would an operations control centre actually run this? Are the decision rules executable by named people under time pressure, do they cover the events as stated, and do they survive propagation? Can you successfully innovate on airline processes in an over constrained system?
3. **Value logic:** is the counterfactual explicit and defensible, are the distributions used rather than ignored, is committed cost kept out of tactical deltas, and does the arithmetic survive an audit?
4. **Persuasion:** the deck. Could it face a board at 18:00 on the worst Sunday of the year, and win approval with style?

Extensions and ideas

Bonus points are available (but not required) for exploring:

- **The Tuesday re-plan:** the industrial action is called off at 21:00 Tuesday. What changes, and how fast can your procedures change it?
- **The headcount:** how many people does the manual week take, in which roles, at what cost?
- **The reconciliation:** TOPS returns Sunday 23:00 believing it is 11 July. A week of truth exists on paper. How does it go back in without corrupting week two?

Useful materials

The data pack (five CSV files and a README) may be found in the 'Useful Materials' at vividata.ai/careers. Every number you need is in it.

Use of AI assistants is expected. Your competitors' airlines use them too.

Submission format

Submit your deck (PDF), your schedule, your procedures, and any models or code behind them, with a short note on what you tried, to **careers@vividata.ai** by **18:00 UK time, Sunday 6 September 2026**. The best submissions will be guaranteed an interview with Vividata; for the strongest, as with our Turing challenge, the interview is a formality.

Vividata Airlines is fictional.